# FOLDING MOBILE PHONE

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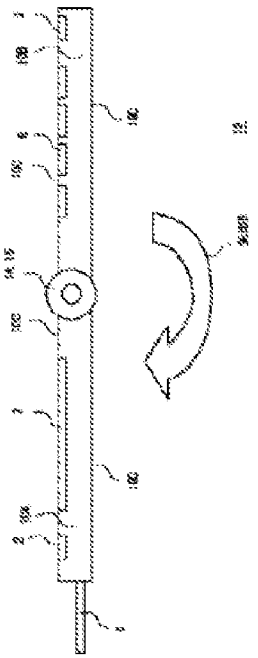
Abstract of **JP2002314657**

PROBLEM TO BE SOLVED: To improve the operability by enabling a user to see a display screen in the close state. SOLUTION: A folding mobile phone 10 which is folded in two for carrying is provided with a front face part 10C having a display part 7 and a key operation part 6 and hinge parts 14 and 15 by which the mobile phone is folded with the front face part outside. The folded state with the front face part outside is detected, and the operation of a key operation part other than a power switch is invalidated when this key operation is turned on in the case that the detected state is the folded state, and the operation of the key operation part is validated when the folded state is switched to the expanded state.



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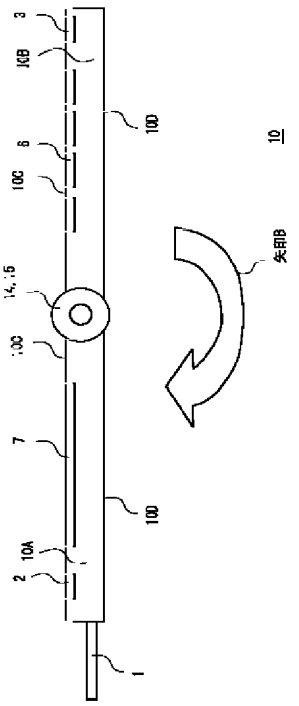
(54)【発明の名称】　折り畳み型携帯電話機

(57)【要約】
【課題】　折り畳み時に表示画面が見られようにし、操作性を向上させる。
【解決手段】　２つに折り畳んで携帯する折り畳み型携帯電話機１０に、表示部７とキー操作部６とを有するフロント面部１０Ｃと、フロント面部を外側にして折り畳みを行うヒンジ部１４、１５とを備える。フロント面部を外側にした折り畳み状態を検出し、検出した状態が折り畳み状態の場合には、電源スイッチ以外の他のキー操作部がＯＮになったときにはこの操作を無効にし、折り畳み状態から展開状態になったときにはキー操作部の操作を有効にする。



【特許請求の範囲】
【請求項１】　２つに折り畳んで携帯する折り畳み型携帯電話機において、
表示部とキー操作部とを有するフロント面部と、
前記フロント面部を外側にして折り畳みを行うヒンジ部とを備えることを特徴とする折り畳み型携帯電話機。
【請求項２】　折り畳み状態で、前記表示部と前記キー操作部とは前記フロント面部の反対側に配置されることを特徴とする、請求項１に記載の折り畳み型携帯電話機。
【請求項３】　折り畳み状態で、前記キー操作部のうち電源スイッチが前記表示部と同一の前記フロント面部に配置されることを特徴とする、請求項１に記載の折り畳み型携帯電話機。
【請求項４】　前記ヒンジ部は、選択的に、前記フロント面部を外側に又は内側にして折り畳みを行うことを特徴とする、請求項１に記載の折り畳み型携帯電話機。
【請求項５】　前記フロント面部を外側にした折り畳み状態を検出し、検出した状態が折り畳み状態の場合には、電源スイッチ以外の他のキー操作部がＯＮになったときにはこの操作を無効にし、折り畳み状態から展開状態になったときにはキー操作部の操作を有効にすることを特徴とする、請求項１又は請求項２に記載の折り畳み型携帯電話機。
【請求項６】　前記ヒンジの回転角の位置で、前記フロント面部を外側にした折り畳み状態を検出することを特徴とする、請求項３に記載の折り畳み型携帯電話機。
【発明の詳細な説明】
【０００１】
【産業上の利用分野】本発明は折り畳み型携帯電話機に関する。特に、本発明は、折り畳み時に表示画面が容易に見られ、操作性が向上できる折り畳み型携帯電話機に関する。
【０００２】
【従来の技術】図８は本発明の前提となる折り畳み型携帯電話機の概略構成を示すフロント面図である。本図に示すように、展開時にフロント面を有する折り畳み型携帯電話機１０は、折り畳まれる上側部１０Ａと下側部１０Ｂ、上側部１０Ａと下側部１０Ｂの折り畳みを行うヒンジ部４、５と、上側部１０Ａに電波の送受信を行うアンテナ１、上側部１０Ａのフロント面に受信信号を受話音に変換するレシーバ２、着信時の着信情報、時間、その他表記される情報を表示するＬＣＤ（液晶表示部）からなる表示部７、下側部１０Ｂのフロント面に送話音を送信信号に変換するマイクロフォン３、電源スイッチ、テンキー等からなるキー操作部６を有する。
【０００３】なお、例えば、ヒンジ部４では下側部１０Ｂがピンに固定され、ヒンジ部５では上側部１０Ａがピンを軸にして回動する。図９は図８の折り畳み型携帯電話機の折り畳み動作を説明するための側面図であり、図１０は図８の折り畳み型携帯電話機１０の折り畳み状態を示す側面図である。
【０００４】携帯時には、本図９に示すように、ヒンジ部４、５を回転の支点として、展開した状態から、矢印Ａに示すよう、折り畳み型携帯電話機１０を折り畳むことにより、本図１０に示すように、リア面部１０Ｄに対して、上側部１０Ａと下側部１０Ｂのフロント面部１０Ｃが内側に向かい合って接するようにしてある。このように、上記折り畳み型携帯電話機１０は、折り畳むことで、一体型の携帯電話機よりもコンパクトで収納、持ち運びに便利であり、また、表示部７の画面を大きくすることができ、見やすいという利点を有する。
【０００５】
【発明が解決しょうとする課題】しかしながら、上記折り畳み型携帯電話機では、折り畳み時には、表示画面が内側になり、表示画面を外側から見られず、開いた状態にして見なければならず、一体型の携帯電話機と比較して、この点では、操作性が悪いという問題がある。
【０００６】このような類似の問題を解決するものとして、特開平１１－３０２２６号公報に記載されるものがある。上記公報には、表示部側筐体をピボットにより表裏反転回転して折り畳んだ状態にしたままでも、表示部側筐体の表示部上の表示を容易に目視確認するものが開示されている。
【０００７】上記公報では、折り畳み時には、表示画面を外側から見られるが、通話毎に時には、折り畳みから展開動作時に、表裏反転回転した表示部側筐体を元に戻す回転を行い、通話を行わなければならず、この点では、前述と同様に操作性が悪い。したがって、本発明は上記問題点に鑑みて、折り畳み時に表示画面が見られ、、操作性が向上でき、且つ通話時にも追加の操作を要求しない折り畳み型携帯電話機を提供することを目的とする。
【０００８】
【課題を解決するための手段】本発明は前記問題点を解決するために、２つに折り畳んで携帯する折り畳み型携帯電話機において、表示部とキー操作部とを有するフロント面部と、前記フロント面部を外側にして折り畳みを行うヒンジ部とを備えることを特徴とする折り畳み型携帯電話機を提供する。好ましくは、折り畳み状態で、前記表示部と前記キー操作部とは前記フロント面部の反対側に配置される。
【０００９】この手段により、コンパクトで収納、持ち運びに便利であり、また、表示部の画面を大きくでき、見やすいという利点に加えて、折り畳み時にフロント面部１０Ｃを外側にすることにより、携帯時に、展開しなくても、表示画面を外側から見え、操作性が向上する。好ましくは、折り畳み状態で、前記キー操作部のうち電源スイッチが前記表示部と同一の前記フロント面部に配置される。

【００１０】この手段により、表示部を見ながら電源スイッチのＯＮ、ＯＦＦができるようにするためである好ましくは、前記ヒンジ部は、選択的に、前記フロント面部を外側に又は内側にして折り畳みを行う。この手段により、ユーザの好みに適応可能になる。

【００１１】好ましくは、前記フロント面部を外側にした折り畳み状態を検出し、検出した状態が折り畳み状態の場合には、電源スイッチ以外の他のキー操作部がＯＮになったときにはこの操作を無効にし、折り畳み状態から展開状態になったときにはキー操作部の操作を有効にする。

【００１２】この手段により、携帯時のキー操作部の誤操作を防止することが可能になる。好ましくは、前記ヒンジの回転角の位置で、前記フロント面部を外側にした折り畳み状態を検出する。

【００１３】この手段により、携帯時のキー操作部の誤操作を防止するために前記フロント面部を外側にした折り畳み状態が検出される。

【００１４】

【発明の実施の形態】以下、本発明の実施の形態について図面を参照して説明する。図１は本発明に係る折り畳み型携帯電話機の展開状態からフロント面部１０Ｃを外側にして折り畳む動作を説明するための側面図であり、図２は図１の折り畳み型携帯電話機１０の折り畳み状態を示す側面図である。

【００１５】本図１に示すように、ヒンジ部１４では下側部１０Ｂがピンに固定され、ヒンジ部１５では上側部１０Ａがピンを軸にして回動する点では、図９のヒンジ４、５と同じであるが、ヒンジ部１４、１５を回転の支点として、展開した状態から、矢印Ｂに示す方向に、折り畳み型携帯電話機１０を折り畳むことにより、本図２に示すように、フロント面部１０Ｃに対して、上側部１０Ａと下側部１０Ｂのリア面部１０Ｄが内側に向かい合って接するようにしてある。

【００１６】さらに、ヒンジ部１４、１５には折り畳み検出器８が設けられ、折り畳み検出器８はヒンジ部１４、１５の回転角の位置で折り畳み状態を検出し、携帯時のキー操作部６のご操作を防止するために使用される。なお、キー操作部６のうち電源スイッチは、上側部１０Ａのフロント面部１０Ｃに表示部７と共に配置されるようにしてもよい。表示部７を見ながら電源スイッチのＯＮ、ＯＦＦができるようにするためである。

【００１７】このように、本発明に係る折り畳み型携帯電話機１０では、フロント面部１０Ｃを外側にして折り畳むことにより、表示部７が外側に現れ、携帯時に、表示部７の表示画面に表示される文字、絵を折り畳んだ状態で見ることが可能になる。

【００１８】したがって、本発明によれば、コンパクトで収納、持ち運びに便利であり、また、表示部７の画面を大きくでき、見やすいという利点に加えて、折り畳み時にフロント面部１０Ｃを外側にすることにより、携帯時に、展開しなくても、表示画面を外側から見え、操作性が向上する。

【００１９】図３は折り畳み型携帯電話機１０の制御部の動作を説明する概略構成を示すブロック図である。本図に示すように、折り畳み型携帯電話機１０の制御を行う折り畳み型携帯電話機の制御部１１は、キー操作有効／無効設定部１２を有する。キー操作有効／無効設定部１２は、キー操作部６、表示部７、折り畳み検出器８に接続され、携帯時のキー操作部６の誤操作を防止するために、以下のように、操作の有効、無効を設定する。

【００２０】図４はキー操作有効／無効設定部１２の動作を説明するフローチャートである。ステップＳ１０１において、キー操作部６の電源スイッチがＯＮにされ、電源の入力が行われる。ステップＳ１０２において、表示部７がＯＮになる。

【００２１】ステップＳ１０３において、折り畳み検出器８がＯＮになっているか否か、つまり、折り畳み型携帯電話機１０が折り畳まれているか又は展開しているかを判断する。ステップＳ１０４において、折り畳み検出器８がＯＦＦになり、折り畳み型携帯電話機１０が折り畳まれて場合には、先ず、キー操作部６の電源スイッチをＯＮにして、表示部７をＯＮにすることにより、折り畳み型携帯電話機１０が折り畳まれた状態で表示部７の表示を見ることが可能になる。

【００２２】折り畳み型携帯電話機１０が折り畳まれた状態で、折り畳み検出器８がＯＦＦである場合には、キー操作部６の操作設定があってもこの操作設定を無効とする。これにより、携帯時に誤って、キー操作部６の電源スイッチがＯＮにされ、さらに、他のキー操作部６がＯＮにされ、誤動作を生じるのを防止することが可能になる。

【００２３】また、ユーザがキー操作部６の電源スイッチをＯＮにしてキー操作部６を表示させ、折り畳み型携帯電話機１０を折り畳み状態で展開せず、電源スイッチをＯＦＦにするのを忘れたような場合に、他のキー操作部６がＯＮにされ、誤動作を生じるのを防止することが可能になる。ステップＳ１０３に戻り、以上のステップを繰り返す。

【００２４】ステップＳ１０５において、折り畳み検出器８がＯＦＦになり、折り畳み型携帯電話機１０が展開される場合には、キー操作部６の操作設定が有効になる。これにより、通常の使用が可能になる。ステップＳ１０６において、折り畳み検出器８がＯＦＦからＯＮになるか否かを判断し、ＯＦＦからＯＮになった場合には、ステップＳ１０４に戻る。

【００２５】ステップＳ１０７において、折り畳み検出器８がＯＮのままの場合には、キー操作部６の電源スイッチがＯＦＦになったか否かを判断する。ＯＮの場合にはステップＳ１０５に戻り、ＯＮの場合には処理を終了

する。図５は図１の変形例であり、展開状態から折り畳み時に、選択的に、表示を外側又は内側にする例を示す図であり、図６は図５の折り畳み型携帯電話機１０のフロント面部１０Ｃを外側にした折り畳み状態を示す側面図であり、図７は図５の折り畳み型携帯電話機１０のフロント面部１０Ｃを内側にした折り畳み状態を示す側面図である。

【００２６】本図５に示すように、矢印Ｂの方向に、展開状態から折り畳むことにより、フロント面部１０Ｃを外側にでき（図６参照）、さらに、矢印Ａの方向に、展開状態から折り畳むことにより、フロント面部１０Ｃを内側にできる（図７参照）。このように、折り畳み時に、フロント面部１０Ｃを選択的に外側又は内側にでき、つまり、表示部７を外側又は内側にできるので、ユーザの好みに適応可能になる。

【００２７】

【発明の効果】以上説明したように、本発明によれば、表示部とキー操作部と有するフロント面部を外側にして折り畳みを行うようにしたので、携帯時に、展開しなくても、表示画面を外側から見ることができ、操作性が向上する。さらに、選択的に、前記フロント面部を外側に又は内側にして折り畳みを行うようにしたので、ユーザの好みに適応可能になる。

【００２８】さらに、前記フロント面部を外側にした折り畳み状態を検出し、検出した状態が折り畳み状態の場合には、電源スイッチ以外の他のキー操作部がＯＮになったときにはこの操作を無効にし、折り畳み状態から展開状態になったときにはキー操作部の操作を有効にするようにしたので、携帯時のキー操作部の誤操作を防止することが可能になる。

【図面の簡単な説明】

【図１】本発明に係る折り畳み型携帯電話機の展開状態からフロント面部１０Ｃを外側にして折り畳む動作を説明するための側面図である。

【図２】図１の折り畳み型携帯電話機１０の折り畳み状態を示す側面図である。

【図３】折り畳み型携帯電話機１０の制御部の動作を説明する概略構成を示すブロック図である。

【図４】キー操作有効／無効設定部１２の動作を説明するフローチャートである。

【図５】図１の変形例であり、展開状態から折り畳み時に、選択的に、表示を外側又は内側にする例を示す図である。

【図６】図５の折り畳み型携帯電話機１０のフロント面部１０Ｃを外側にした折り畳み状態を示す側面図である。

【図７】図５の折り畳み型携帯電話機１０のフロント面部１０Ｃを内側にした折り畳み状態を示す側面図である。

【図８】本発明の前提となる折り畳み型携帯電話機の概略構成を示すフロント面図である。

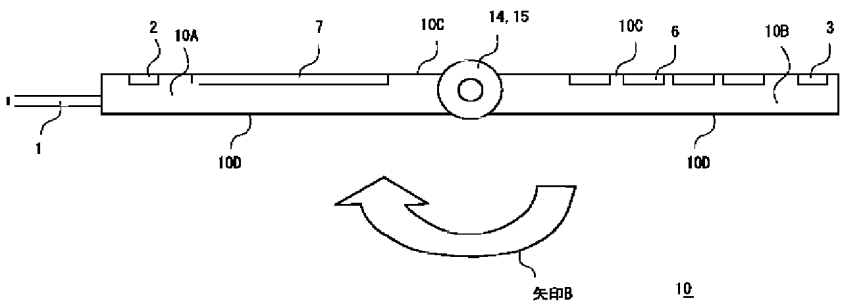
【図９】図８の折り畳み型携帯電話機の折り畳み動作を説明するための側面図である。

【図１０】図８の折り畳み型携帯電話機１０の折り畳み状態を示す側面図である。

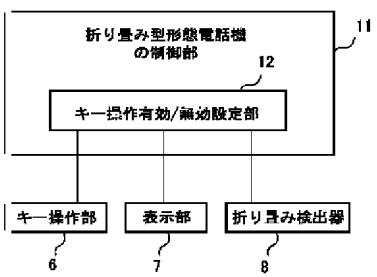
【符号の説明】

１…アンテナ
２…レシーバ
３…マイクロフォン
６…キー操作部
７…表示部
８…折り畳み検出器
１０…折り畳み型携帯電話機
１０Ａ…上側部
１０Ｂ…下側部
１０Ｃ…フロント面部
１０Ｄ…リア面部
１１…折り畳み型携帯電話機の制御部
１２…キー操作有効／無効設定部
１４、１５…ヒンジ部

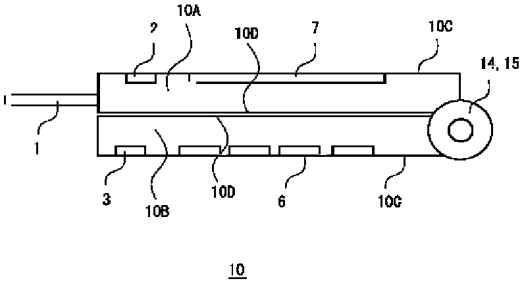
【図１】



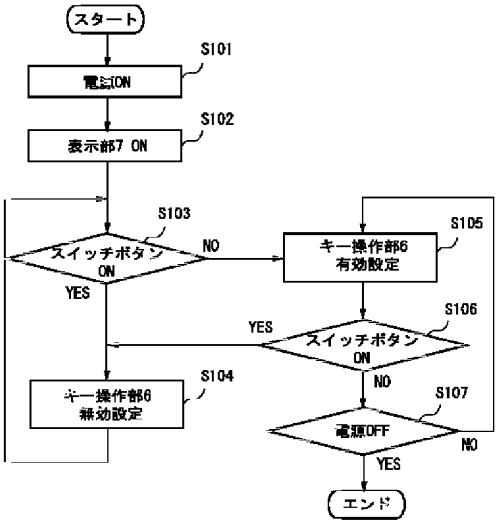

【図３】



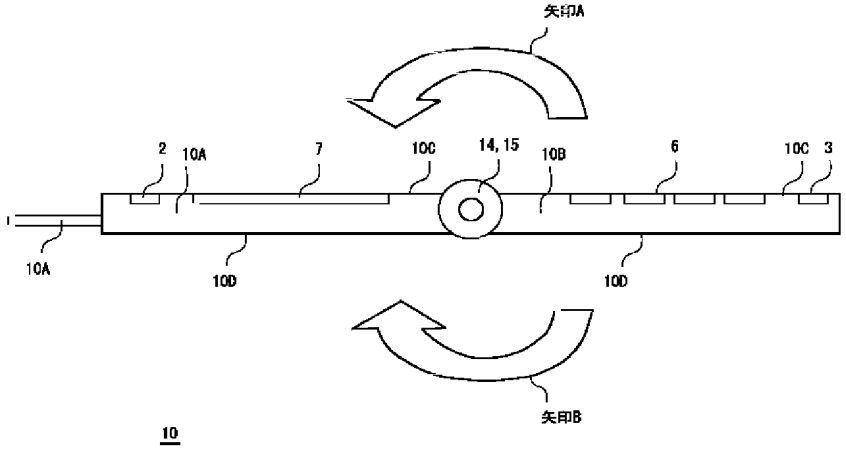
【図２】


10A
2
10D
7
10C
14, 15
1
3
10B
10D
6
10C
10

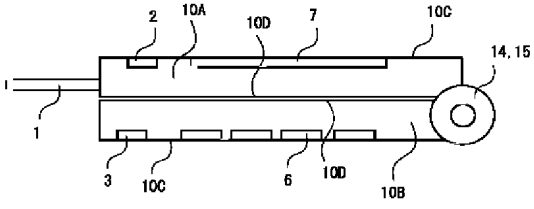
【図４】


スタート
S101
電源ON
S102
表示部7 ON
S103
スイッチボタン ON
NO
YES
S105
キー操作部6 有効設定
S106
スイッチボタン ON
YES
NO
S104
キー操作部6 無効設定
S107
電源OFF
NO
YES
エンド

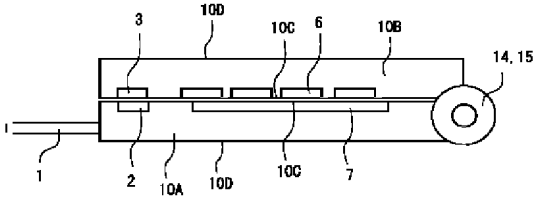
【図５】


矢印A
2
10A
7
10C
14, 15
10B
6
10C
3
10A
10D
10D
矢印B
10

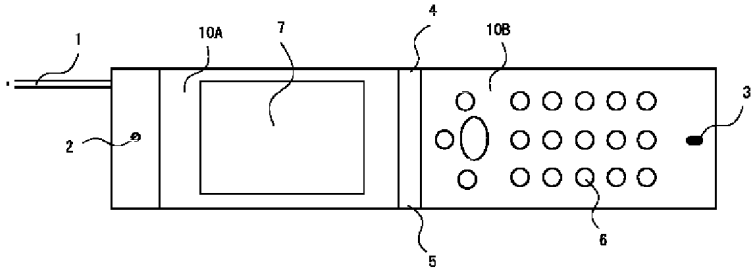
【図６】


2
10A
10D
7
10C
14, 15
1
3
10C
6
10D
10B

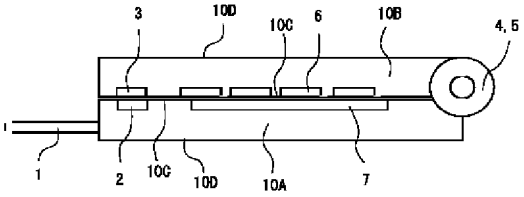
【図７】


3
10D
10C
6
10B
14, 15
1
2
10A
10D
10C
7
10

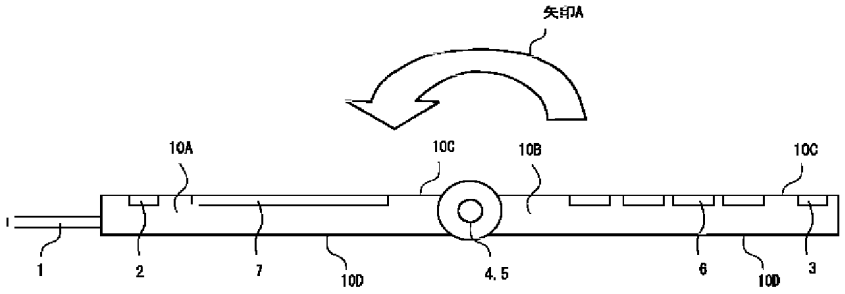
【図８】




【図１０】




【図９】

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フロントページの続き

Ｆターム(参考)　3J105 AA02 AA03 AB14 AC07
4E360 AA02 AB02 AB42 BA02 BB12
BB23 CA01 EA13 ED28 GA46
GB26
5K023 AA07 BB01 DD08 GG04 HH07
LL06

## CLAIMS

[Claim(s)]
[Claim 1]A folded-up type portable telephone folded up and carried to two, comprising:
A front surface part which has an indicator and a key operation section.
A hinge region which folds up by carrying out said front surface part outside.

[Claim 2]The folded-up type portable telephone according to claim 1 characterized by arranging said indicator and said key operation section in an opposite hand of said front surface part by a folded state.
[Claim 3]The folded-up type portable telephone according to claim 1 characterized by arranging an electric power switch among said key operation sections at said same front surface part as said indicator by a folded state.
[Claim 4]The folded-up type portable telephone according to claim 1, wherein said hinge region folds up by making said front surface part into the outside or the inside selectively.
[Claim 5]When the state where a folded state which carried out said front surface part outside was detected and detected is a folded state, The folded-up type portable telephone according to claim 1 or 2 which repeals this operation when other key operation sections other than an electric power switch are set to ON, and is characterized by validating operation of a key operation section when it is from a folded state in an expanded state.
[Claim 6]The folded-up type portable telephone according to claim 3 detecting a folded state which carried out said front surface part outside in a position of an angle of rotation of said hinge.

## DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application]This invention relates to a folded-up type portable telephone. A display screen is easily seen at the time of folding, and especially this invention relates to the folded-up type portable telephone whose operativity can improve.
[0002]
[Description of the Prior Art]Drawing 8 is a front surface figure showing the outline composition of the folded-up type portable telephone which will be the requisite for this invention. As shown in this figure, the folded-up type portable telephone 10 which has a front surface at the time of deployment, The upper section 10A folded up, the lower part 10B and the upper section 10A, and the hinge regions 4 and 5 which perform folding of the lower part 10B, The antenna 1 which transmits and receives an electric wave to the upper section 10A, the receiver 2 which changes an input signal into a receiver sound in the front surface of the upper section 10A, the incoming information at the time of mail arrival, It has the key operation section 6 which consists of time, the other indicators 7

which consist of LCD (liquid crystal display section) which displays the information written, the microphone 3 which changes a transmission sound into a sending signal in the front surface of the lower part 10B, an electric power switch, a ten key, etc.
[0003]For example, the lower part 10B is fixed to a pin in the hinge region 4, and the upper section 10A rotates centering on a pin by the hinge region 5. Drawing 9 is a side view for explaining the folding operation of the folded-up type portable telephone of drawing 8, and drawing 10 is a side view showing the folded state of the folded-up type portable telephone 10 of drawing 8.
[0004]At the time of carrying, as shown in this drawing 9, as shown in the arrow A, from the developed state, as a fulcrum of rotation of the hinge regions 4 and 5, The front surface part 10C of the upper section 10A and the lower part 10B faces each other inside, and it is made to have touched to the rear surface part 10D by folding up the folded-up type portable telephone 10, as shown in this drawing 10. Thus, by folding up, the above-mentioned folded-up type portable telephone 10 is compacter than an integral-type portable telephone, and is useful for storage and carrying, and can enlarge the screen of the indicator 7, and has the advantage that it is legible.
[0005]
[Problem(s) to be Solved by the Invention]However, with the above-mentioned folded-up type portable telephone, at the time of folding, a display screen becomes inside, from the outside, it does not see, but a display screen must be changed into the state where it opened, and must be seen, and there is a problem that operativity is bad, at this point as compared with an integral-type portable telephone.
[0006]There is a thing indicated to JP,11-30226,A to solve such a similar problem. What inspects the display on the indicator of the indicator side case visually easily change [ into the state where carried out rear-surface-inversion rotation by the pivot, and the indicator side case was folded up in the above-mentioned gazette ] is indicated.
[0007]Although a display screen is seen from the outside in the above-mentioned gazette at the time of folding, occasionally it must talk over the telephone from folding for every telephone call by performing rotation which returns the indicator side case which carried out rear-surface-inversion rotation at the time of unfolding operation, and operativity is bad like the above-mentioned at this point. Therefore, it aims at providing the folded-up type portable telephone whose this invention a display screen is seen at the time of folding, and can improve operativity in view of the above-mentioned problem and which does not require additional operation at the time of a telephone call, either.
[0008]
[Means for Solving the Problem]A folded-up type portable telephone folded up and carried to two in order that this invention may solve said problem which is characterized by that a folded-up type portable telephone comprises the following.
A front surface part which has an indicator and a key operation section.
A hinge region which folds up by carrying out said front surface part outside.
Preferably, it is a folded state and said indicator and said key operation section are arranged in an opposite hand of said front surface part.
[0009]Even if it does not develop at the time of carrying by it being compact, and being convenient for storage and carrying, and being able to enlarge a screen of an indicator, and carrying out the front surface part 10C outside by this means at the time of folding in addition to an advantage that it is legible, it is visible from the outside in a display screen,

and operativity improves. Preferably, it is a folded state and an electric power switch is arranged among said key operation sections at said same front surface part as said indicator.
[0010]it is because it can be made to perform ON of an electric power switch, and OFF by this means, looking at an indicator -- said hinge region folds up by making said front surface part into the outside or the inside selectively preferably. Adaptation in a user's liking is attained by this means.
[0011]When the state where a folded state which carried out said front surface part outside was detected and detected preferably is a folded state, when other key operation sections other than an electric power switch are set to ON, this operation is repealed, and when it is from a folded state in an expanded state, operation of a key operation section is validated.
[0012]This means enables it to prevent an operation mistake of a key operation section at the time of carrying. Preferably, it is a position of an angle of rotation of said hinge, and a folded state which carried out said front surface part outside is detected.
[0013]A folded state which carried out said front surface part outside by this means in order to prevent an operation mistake of a key operation section at the time of carrying is detected.
[0014]
[Embodiment of the Invention]Hereafter, an embodiment of the invention is described with reference to drawings. Drawing 1 is a side view for explaining the operation which carries out the front surface part 10C outside, and folds it up from the expanded state of the folded-up type portable telephone concerning this invention, and drawing 2 is a side view showing the folded state of the folded-up type portable telephone 10 of drawing 1.
[0015]As shown in this drawing 1, although it is the same as the hinges 4 and 5 of drawing 9, at the point which the lower part 10B is fixed to a pin in the hinge region 14, and the upper section 10A rotates centering on a pin in the hinge region 15, By folding up the folded-up type portable telephone 10 from the developed state as a fulcrum of rotation of the hinge regions 14 and 15 in the direction shown in the arrow B, The rear surface part 10D of the upper section 10A and the lower part 10B faces each other inside, and it is made to have touched to the front surface part 10C, as shown in this drawing 2.
[0016]It folds up to the hinge regions 14 and 15, and the detector 8 is formed, and a folded state is detected in the position of the angle of rotation of the hinge regions 14 and 15, and the folding detector 8 is used in order to prevent operation of the key operation section 6 at the time of carrying. An electric power switch may be made to be arranged with the indicator 7 at the front surface part 10C of the upper section 10A among the key operation sections 6. It is because it can be made to perform ON of an electric power switch, and OFF, looking at the indicator 7.
[0017]Thus, in the folded-up type portable telephone 10 concerning this invention, by carrying out the front surface part 10C outside, and folding it up, the indicator 7 appears outside and it becomes possible at the time of carrying to see, where the character and picture which are displayed on the display screen of the indicator 7 are folded up.
[0018]Therefore, according to this invention, it is compact, and is convenient for storage and carrying, and can enlarge the screen of the indicator 7, and to the advantage that it is legible in addition, by carrying out the front surface part 10C outside at the time of folding, Even if it does not develop at the time of carrying, it is visible from the outside in

a display screen, and operativity improves.
[0019]Drawing 3 is a block diagram showing the outline composition explaining operation of the control section of the folded-up type portable telephone 10. As shown in this figure, the control section 11 of the folded-up type portable telephone which controls the folded-up type portable telephone 10 has key operation effective / invalid set part 12. Key operation effective / invalid set part 12 sets up the validity of operation, and invalidity as follows, in order to be connected to the key operation section 6, the indicator 7, and the folding detector 8 and to prevent the operation mistake of the key operation section 6 at the time of carrying.
[0020]Drawing 4 is a flow chart explaining operation of key operation effective / invalid set part 12. In Step S101, the electric power switch of the key operation section 6 is turned ON, and the input of a power supply is performed. The indicator 7 is set to ON in Step S102.
[0021]In Step S103, it is got [ whether the folding detector 8 is set to ON, and ] blocked, and it is judged whether the folded-up type portable telephone 10 is folded up or it is developing. In Step S104, the folding detector 8 is come by off, it is folded up by the folded-up type portable telephone 10, and to a case. First, it becomes possible by turning ON the electric power switch of the key operation section 6, and turning ON the indicator 7 to see the display of the indicator 7, where the folded-up type portable telephone 10 is folded up.
[0022]Where the folded-up type portable telephone 10 is folded up, when the folding detector 8 is OFF, even if the operation setting of the key operation section 6 occurs, this operation setting is repealed. By this, the electric power switch of the key operation section 6 is turned ON, the key operation section 6 of further others is accidentally, turned ON at the time of carrying, and it becomes possible to prevent producing malfunction.
[0023]A user turns ON the electric power switch of the key operation section 6, and displays the key operation section 6, When not to develop the folded-up type portable telephone 10 by a folded state, but to turn OFF an electric power switch has been forgotten, it becomes possible to prevent them from other key operation sections 6 being turned ON, and producing malfunction. It returns to Step S103 and the above step is repeated.
[0024]In Step S105, when the folding detector 8 is come by off and the folded-up type portable telephone 10 is developed, the operation setting of the key operation section 6 becomes effective. Thereby, anticipated use becomes possible. In Step S106, when it judges whether the folding detector 8 is set to ON from OFF and set to ON from OFF, it returns to Step S104.
[0025]In Step S107, when the folding detector 8 continues being ON, it is judged whether the electric power switch of the key operation section 6 was come by off. In ON, it returns at Step S105, and, in ON, processing is ended. Drawing 5 is a modification of drawing 1, fold up from an expanded state, and sometimes selectively, It is a figure showing the example which gives an indication the outside or the inside, drawing 6 is a side view showing the folded state which carried out the front surface part 10C of the folded-up type portable telephone 10 of drawing 5 outside, and drawing 7 is a side view showing the folded state which carried out the front surface part 10C of the folded-up type portable telephone 10 of drawing 5 inside.

[0026]As shown in this drawing 5, by folding up from an expanded state in the direction of the arrow B, the front surface part 10C is made on outside (refer to drawing 6), and the front surface part 10C is further made inside by folding up from an expanded state in the direction of the arrow A (refer to drawing 7). Thus, since the front surface part 10C is selectively made to the outside or the inside, it is got blocked and the indicator 7 is made to the outside or the inside at the time of folding, adaptation in a user's liking is attained.
[0027]
[Effect of the Invention]According to this invention, as explained above, since it was made to fold up by carrying out an indicator, a key operation section, and the front surface part it has outside, even if it does not develop at the time of carrying, a display screen can be seen from the outside and operativity improves. Since it was made to fold up by making said front surface part into the outside or the inside selectively, adaptation in a user's liking is attained.
[0028]When the state where the folded state which carried out said front surface part outside was detected and detected is a folded state, When other key operation sections other than an electric power switch are set to ON, this operation is repealed, and since it was made to validate operation of the key operation section when it was from a folded state in an expanded state, it becomes possible to prevent the operation mistake of the key operation section at the time of carrying.

## TECHNICAL FIELD

[Industrial Application]This invention relates to a folded-up type portable telephone. A display screen is easily seen at the time of folding, and especially this invention relates to the folded-up type portable telephone whose operativity can improve.

## PRIOR ART

[Description of the Prior Art]Drawing 8 is a front surface figure showing the outline composition of the folded-up type portable telephone which will be the requisite for this invention. As shown in this figure, the folded-up type portable telephone 10 which has a front surface at the time of deployment, The upper section 10A folded up, the lower part 10B and the upper section 10A, and the hinge regions 4 and 5 which perform folding of the lower part 10B, The antenna 1 which transmits and receives an electric wave to the upper section 10A, the receiver 2 which changes an input signal into a receiver sound in the front surface of the upper section 10A, the incoming information at the time of mail arrival, It has the key operation section 6 which consists of time, the other indicators 7 which consist of LCD (liquid crystal display section) which displays the information written, the microphone 3 which changes a transmission sound into a sending signal in the front surface of the lower part 10B, an electric power switch, a ten key, etc.
[0003]For example, the lower part 10B is fixed to a pin in the hinge region 4, and the upper section 10A rotates centering on a pin by the hinge region 5. Drawing 9 is a side view for explaining the folding operation of the folded-up type portable telephone of drawing 8, and drawing 10 is a side view showing the folded state of the folded-up type

portable telephone 10 of drawing 8.
[0004]At the time of carrying, as shown in this drawing 9, as shown in the arrow A, from the developed state, as a fulcrum of rotation of the hinge regions 4 and 5, The front surface part 10C of the upper section 10A and the lower part 10B faces each other inside, and it is made to have touched to the rear surface part 10D by folding up the folded-up type portable telephone 10, as shown in this drawing 10. Thus, by folding up, the above-mentioned folded-up type portable telephone 10 is compacter than an integral-type portable telephone, and is useful for storage and carrying, and can enlarge the screen of the indicator 7, and has the advantage that it is legible.

## EFFECT OF THE INVENTION

[Effect of the Invention]As explained above, in this invention, it was made to fold up by carrying out an indicator, a key operation section, and the front surface part it has outside. Therefore, even if it does not develop at the time of carrying, a display screen can be seen from the outside and operativity improves.
Since it was made to fold up by making said front surface part into the outside or the inside selectively, adaptation in a user's liking is attained.
[0028]When the state where the folded state which carried out said front surface part outside was detected and detected is a folded state, When other key operation sections other than an electric power switch are set to ON, this operation is repealed, and since it was made to validate operation of the key operation section when it was from a folded state in an expanded state, it becomes possible to prevent the operation mistake of the key operation section at the time of carrying.

## TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention]However, with the above-mentioned folded-up type portable telephone, at the time of folding, a display screen becomes inside, from the outside, it does not see, but a display screen must be changed into the state where it opened, and must be seen, and there is a problem that operativity is bad, at this point as compared with an integral-type portable telephone.
[0006]There is a thing indicated to JP,11-30226,A to solve such a similar problem. What inspects the display on the indicator of the indicator side case visually easily change [ into the state where carried out rear-surface-inversion rotation by the pivot, and the indicator side case was folded up in the above-mentioned gazette ] is indicated.
[0007]Although a display screen is seen from the outside in the above-mentioned gazette at the time of folding, occasionally it must talk over the telephone from folding for every telephone call by performing rotation which returns the indicator side case which carried out rear-surface-inversion rotation at the time of unfolding operation, and operativity is bad like the above-mentioned at this point. Therefore, it aims at providing the folded-up type portable telephone whose this invention a display screen is seen at the time of folding, and can improve operativity in view of the above-mentioned problem and which does not require additional operation at the time of a telephone call, either.

**MEANS**

[Means for Solving the Problem]A folded-up type portable telephone folded up and carried to two in order that this invention may solve said problem which is characterized by that a folded-up type portable telephone comprises the following.
A front surface part which has an indicator and a key operation section.
A hinge region which folds up by carrying out said front surface part outside.
Preferably, it is a folded state and said indicator and said key operation section are arranged in an opposite hand of said front surface part.
[0009]Even if it does not develop at the time of carrying by it being compact, and being convenient for storage and carrying, and being able to enlarge a screen of an indicator, and carrying out the front surface part 10C outside by this means at the time of folding in addition to an advantage that it is legible, it is visible from the outside in a display screen, and operativity improves. Preferably, it is a folded state and an electric power switch is arranged among said key operation sections at said same front surface part as said indicator.
[0010]it is because it can be made to perform ON of an electric power switch, and OFF by this means, looking at an indicator -- said hinge region folds up by making said front surface part into the outside or the inside selectively preferably. Adaptation in a user's liking is attained by this means.
[0011]When the state where a folded state which carried out said front surface part outside was detected and detected preferably is a folded state, when other key operation sections other than an electric power switch are set to ON, this operation is repealed, and when it is from a folded state in an expanded state, operation of a key operation section is validated.
[0012]This means enables it to prevent an operation mistake of a key operation section at the time of carrying. Preferably, it is a position of an angle of rotation of said hinge, and a folded state which carried out said front surface part outside is detected.
[0013]A folded state which carried out said front surface part outside by this means in order to prevent an operation mistake of a key operation section at the time of carrying is detected.
[0014]
[Embodiment of the Invention]Hereafter, an embodiment of the invention is described with reference to drawings. Drawing 1 is a side view for explaining the operation which carries out the front surface part 10C outside, and folds it up from the expanded state of the folded-up type portable telephone concerning this invention, and drawing 2 is a side view showing the folded state of the folded-up type portable telephone 10 of drawing 1.
[0015]As shown in this drawing 1, although it is the same as the hinges 4 and 5 of drawing 9, at the point which the lower part 10B is fixed to a pin in the hinge region 14, and the upper section 10A rotates centering on a pin in the hinge region 15, By folding up the folded-up type portable telephone 10 from the developed state as a fulcrum of rotation of the hinge regions 14 and 15 in the direction shown in the arrow B, The rear surface part 10D of the upper section 10A and the lower part 10B faces each other inside, and it is made to have touched to the front surface part 10C, as shown in this drawing 2.
[0016]It folds up to the hinge regions 14 and 15, and the detector 8 is formed, and a

folded state is detected in the position of the angle of rotation of the hinge regions 14 and 15, and the folding detector 8 is used in order to prevent operation of the key operation section 6 at the time of carrying. An electric power switch may be made to be arranged with the indicator 7 at the front surface part 10C of the upper section 10A among the key operation sections 6. It is because it can be made to perform ON of an electric power switch, and OFF, looking at the indicator 7.

[0017]Thus, in the folded-up type portable telephone 10 concerning this invention, by carrying out the front surface part 10C outside, and folding it up, the indicator 7 appears outside and it becomes possible at the time of carrying to see, where the character and picture which are displayed on the display screen of the indicator 7 are folded up.

[0018]Therefore, according to this invention, it is compact, and is convenient for storage and carrying, and can enlarge the screen of the indicator 7, and to the advantage that it is legible in addition, by carrying out the front surface part 10C outside at the time of folding, Even if it does not develop at the time of carrying, it is visible from the outside in a display screen, and operativity improves.

[0019]Drawing 3 is a block diagram showing the outline composition explaining operation of the control section of the folded-up type portable telephone 10. As shown in this figure, the control section 11 of the folded-up type portable telephone which controls the folded-up type portable telephone 10 has key operation effective / invalid set part 12. Key operation effective / invalid set part 12 sets up the validity of operation, and invalidity as follows, in order to be connected to the key operation section 6, the indicator 7, and the folding detector 8 and to prevent the operation mistake of the key operation section 6 at the time of carrying.

[0020]Drawing 4 is a flow chart explaining operation of key operation effective / invalid set part 12. In Step S101, the electric power switch of the key operation section 6 is turned ON, and the input of a power supply is performed. The indicator 7 is set to ON in Step S102.

[0021]In Step S103, it is got [ whether the folding detector 8 is set to ON, and ] blocked, and it is judged whether the folded-up type portable telephone 10 is folded up or it is developing. In Step S104, the folding detector 8 is come by off, it is folded up by the folded-up type portable telephone 10, and to a case. First, it becomes possible by turning ON the electric power switch of the key operation section 6, and turning ON the indicator 7 to see the display of the indicator 7, where the folded-up type portable telephone 10 is folded up.

[0022]Where the folded-up type portable telephone 10 is folded up, when the folding detector 8 is OFF, even if the operation setting of the key operation section 6 occurs, this operation setting is repealed. By this, the electric power switch of the key operation section 6 is turned ON, the key operation section 6 of further others is accidentally, turned ON at the time of carrying, and it becomes possible to prevent producing malfunction.

[0023]A user turns ON the electric power switch of the key operation section 6, and displays the key operation section 6, When not to develop the folded-up type portable telephone 10 by a folded state, but to turn OFF an electric power switch has been forgotten, it becomes possible to prevent them from other key operation sections 6 being turned ON, and producing malfunction. It returns to Step S103 and the above step is repeated.

[0024]In Step S105, when the folding detector 8 is come by off and the folded-up type portable telephone 10 is developed, the operation setting of the key operation section 6 becomes effective. Thereby, anticipated use becomes possible. In Step S106, when it judges whether the folding detector 8 is set to ON from OFF and set to ON from OFF, it returns to Step S104.
[0025]In Step S107, when the folding detector 8 continues being ON, it is judged whether the electric power switch of the key operation section 6 was come by off. In ON, it returns at Step S105, and, in ON, processing is ended. Drawing 5 is a modification of drawing 1, fold up from an expanded state, and sometimes selectively, It is a figure showing the example which gives an indication the outside or the inside, drawing 6 is a side view showing the folded state which carried out the front surface part 10C of the folded-up type portable telephone 10 of drawing 5 outside, and drawing 7 is a side view showing the folded state which carried out the front surface part 10C of the folded-up type portable telephone 10 of drawing 5 inside.
[0026]As shown in this drawing 5, by folding up from an expanded state in the direction of the arrow B, the front surface part 10C is made on outside (refer to drawing 6), and the front surface part 10C is further made inside by folding up from an expanded state in the direction of the arrow A (refer to drawing 7). Thus, since the front surface part 10C is selectively made to the outside or the inside, it is got blocked and the indicator 7 is made to the outside or the inside at the time of folding, adaptation in a user's liking is attained.

## DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1]It is a side view for explaining the operation which carries out the front surface part 10C outside, and folds it up from the expanded state of the folded-up type portable telephone concerning this invention.
[Drawing 2]It is a side view showing the folded state of the folded-up type portable telephone 10 of drawing 1.
[Drawing 3]It is a block diagram showing the outline composition explaining operation of the control section of the folded-up type portable telephone 10.
[Drawing 4]It is a flow chart explaining operation of key operation effective / invalid set part 12.
[Drawing 5]It is a modification of drawing 1 and is a figure showing the example which folds up from an expanded state and sometimes gives an indication the outside or the inside selectively.
[Drawing 6]It is a side view showing the folded state which carried out the front surface part 10C of the folded-up type portable telephone 10 of drawing 5 outside.
[Drawing 7]It is a side view showing the folded state which carried out the front surface part 10C of the folded-up type portable telephone 10 of drawing 5 inside.
[Drawing 8]It is a front surface figure showing the outline composition of the folded-up type portable telephone which will be the requisite for this invention.
[Drawing 9]It is a side view for explaining the folding operation of the folded-up type portable telephone of drawing 8.
[Drawing 10]It is a side view showing the folded state of the folded-up type portable telephone 10 of drawing 8.

[Description of Notations]
1 -- Antenna
2 -- Receiver
3 -- Microphone
6 -- Key operation section
7 -- Indicator
8 -- Fold-up detector
10 -- Folded-up type portable telephone
10A -- Upper section
10B -- Lower part
10C -- Front surface part
10D -- Rear surface part
11 -- Control section of a folded-up type portable telephone
12 -- Key operation effective / invalid set part
14, 15 -- Hinge region

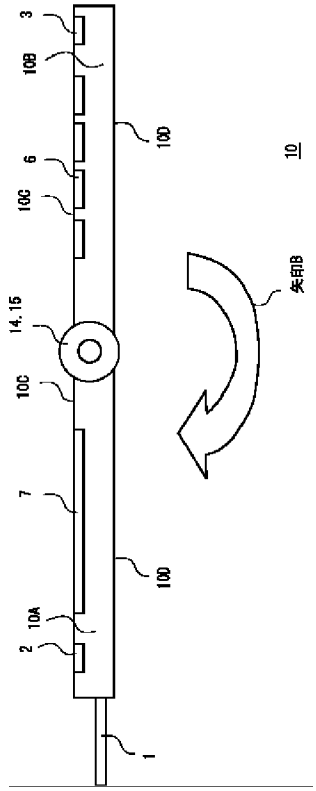


Fig 1

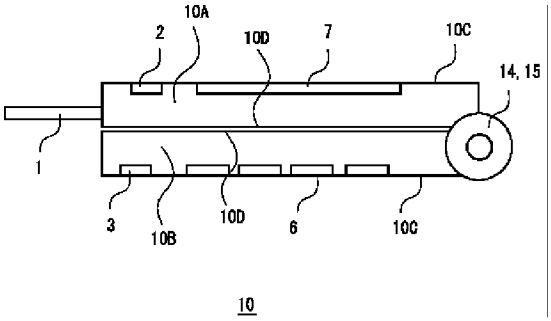


Fig 2

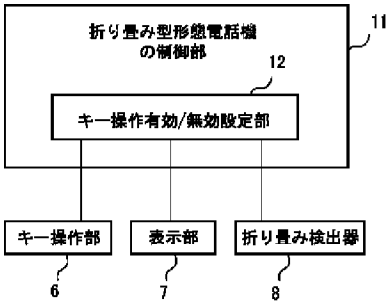


Fig 3

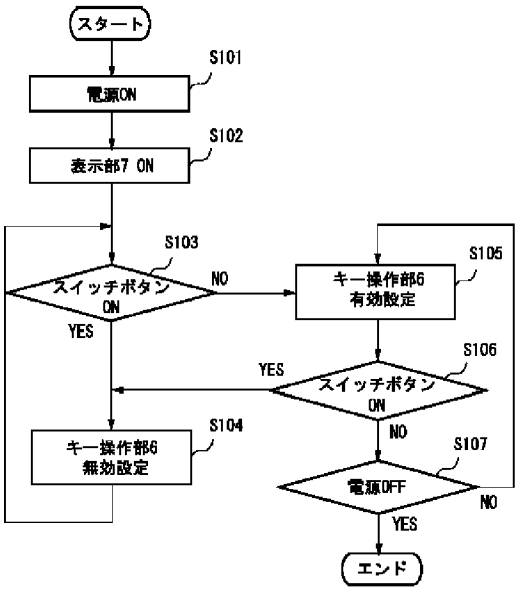


Fig 4

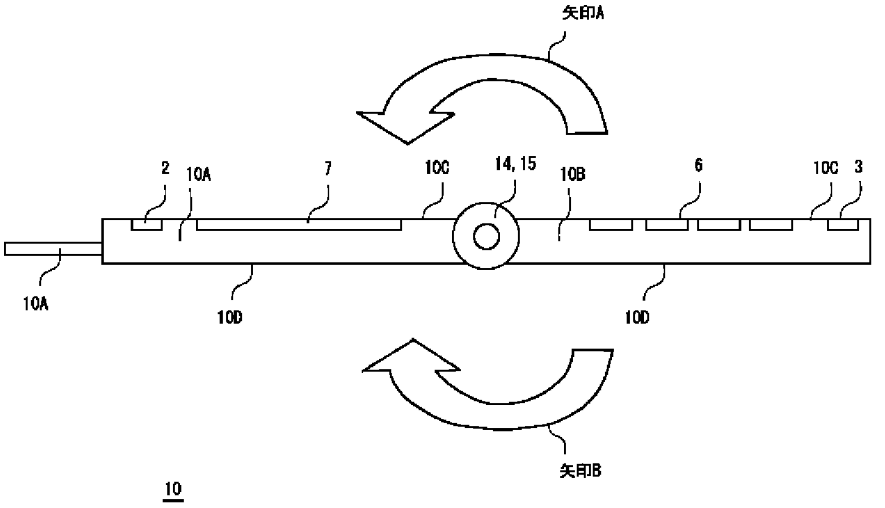


Fig 5

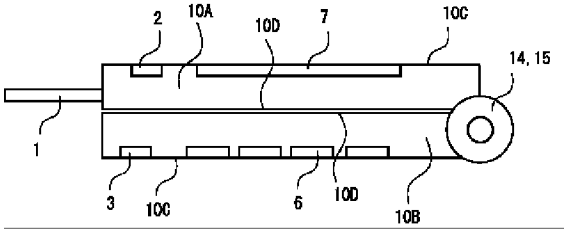


Fig 6

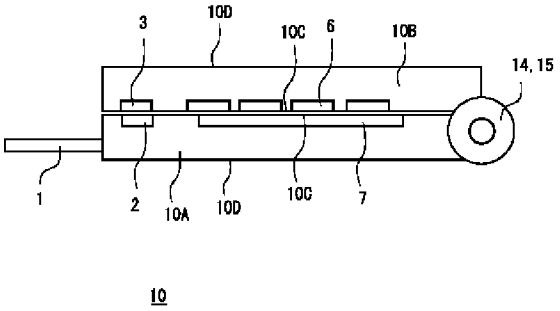


Fig 7

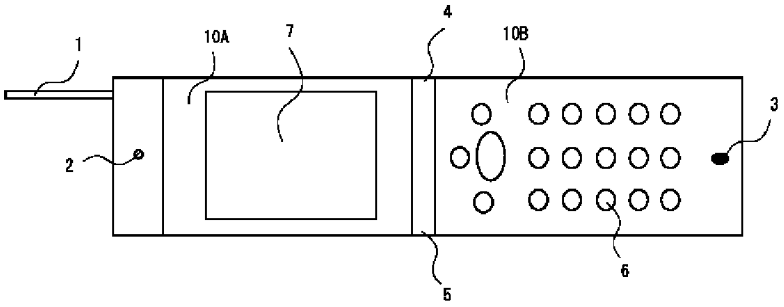


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Fig. 8

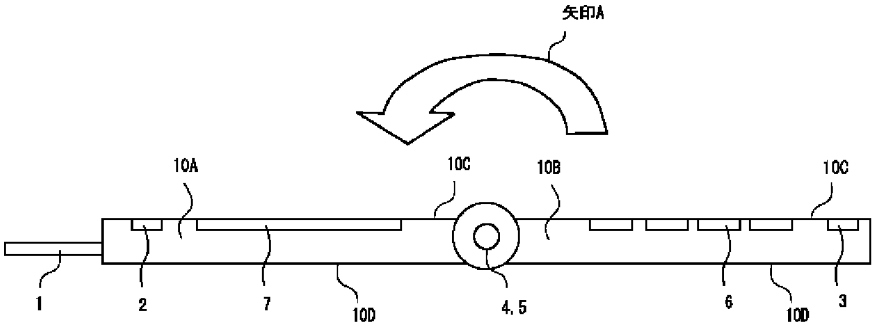


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Fig. 9